IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Paul Silinger

Application No.: 10/765782 Group No.: 1753

Filed: June 11, 2003 Examiner: Luan V. Van

For: **INTERNAL HEAT SPREADER PLATING METHODS AND DEVICES**

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APPELLANT'S REPLY BRIEF UNDER 37 CFR § 41.41

This reply brief follows the Examiner's Answer dated September 6, 2007. The fees required under 37 CFR §1.17(f) are included with this brief.

This brief contains the following items under the headings in the order here indicated:

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REAL PARTY IN INTEREST

The real party in interest is the assignee, Honeywell International Inc. (see Reel/Frame No. 012910/0226, Recorded on May 20, 2002)

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences in this matter known to appellant.

STATUS OF THE CLAIMS

There are 18 claims in this case.

Claims 16-18 were canceled in the Response to the First Office Action dated April 10, 2006.

Claims 1-15 stand rejected.

Claims 1-15 are being appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to final rejection in this matter.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The subject matter of the present application, including independent claims 1 and 15, is directed to plating systems for heat spreaders and other related parts.

The first independent claim is directed to a plating system comprising: an elongated upper channel and an elongated lower channel (Page 2, lines 2-13); and a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels. (Page 2, lines 2-13)

The second independent claim is directed to a plating system comprising: an anode (Page 2, lines 9-13), a planar cathode (Page 4, lines 2-5), a horizontal sparger (Page 3, lines 17-25, Page 4, lines 8-15 and Figure 2), and a plurality of electrically insulating shields (Page 6, lines 19-25); wherein each of the plurality of shields is positioned between the anode and the cathode but not between the sparger and the cathode, and each of the plurality of shields is approximately co-planar with one of two reference planes that are substantially parallel to the cathode (Figures 2 and 3 – entire Figures as presented); and the sparger is adapted to direct plating fluid toward and edge of the cathode along in a plane substantially co-planar with cathode. (Figures 2 and 3 – entire Figures as presented, Page 6, lines 4-9)

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 9 and 12 are rejected under 35 USC §102(b) as being anticipated by Admitted Prior Art (Fig. 1, Page 1 of the Applicant's disclosure) or, in the alternative, under 35 USC §103(a) as obvious over Admitted Prior Art.

Claims 1-15 are rejected under 35 USC §103(a) as being unpatentable over Admitted Prior Art in view of Lace et al.

Claim 15 has a new ground of rejection based on the Examiner's assertion that the plurality of shields 13 of Admitted Prior Art is not between the sparger and the cathode, as stated in Claim 15.

ARGUMENT

ISSUE NO. 1 - §102 AND 103 REJECTION OF CLAIMS 1, 2, 9 AND 12 BASED ON APPLICANT'S ADMITTED PRIOR ART

Claims 1, 2, 9 and 12 are rejected under 35 USC §102(b) as being anticipated by Admitted Prior Art (Fig. 1, Page 1 of the Applicant's disclosure) or, in the alternative, under 35 USC §103(a) as obvious over Admitted Prior Art. The Applicants respectfully disagree.

Claim 1 recites:

"A plating system comprising:
an elongated upper channel and an elongated lower channel; and
a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels."

As pointed out in the Specification, an improved plating system 100 is shown in **Figure 2** which provides for improved metal distribution over a work piece 900. In the improved system 100, the vertical spargers (spargers 11 in **Figure 1**) found in prior art plating systems are eliminated and fluid 800 enters the chamber 120 through the bottom of the chamber with the bottom of the chamber acting as a horizontal sparger 110. By eliminating the vertical spargers, the distance D2 between the part being plated 900 and the shields 130 can be decreased (with a corresponding decrease in the distance D4 between the fields forming the sides of the channel).

As the Specification also specifically points out, the system of **Figure 2** may be obtained by modifying the system of **Figure 1** (a Technic Inc. MP 300 – and Applicant's

Admitted Prior Art) in the following manner: (1) eliminating the tubular vertical solution spargers and replacing them with holes 111 fabricated in the lower plenum so that solution travels around the parts to be plated as a turbulent flow from the bottom of the parts to the tops, and not from the sides; (2) increasing the solution velocity; (3) moving the shields closer to the parts to be plated (cathodes); (4) incorporating part holding clamps sufficiently narrow so as to adequately hold the part while still permitting the claims and parts to move between the shields; and (5) incorporating a double rinsing and drying process where the plating/part holding fixture is rinsed and dried first, and the plated part and lower half of the fixture are subsequently rinsed and dried. These modifications to the Technic system render the claims of the current application patentable as not anticipated by Technic, because Technic cannot possibly anticipate the modifications disclosed in the current system and recited in the claims.

The Applicant believes, after reviewing the Examiner's Answer, that the Examiner is merely assembling puzzle pieces to arrive at a whole "prior art reference", and the Examiner is also improperly deconstructing claim 1 of the present application to arrive at the goal the Examiner wishes to reach.

REVIEW OF PENDING CLAIM 1 "AS A WHOLE"

First, it is important to read claim 1 *as a whole*. Claim 1 states that a plating system comprises the following: a) an elongated upper channel and an elongated lower channel; and b) a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets ***into one*** and ***towards another*** of the upper and lower channels. (emphasis added) The Examiner states that the "comprising" language means that Claim 1 could include vertical spargers attached to the series of inlets, and therefore, Claim 1 reads on Applicant's Admitted Prior Art. This analysis and result is inherently faulty. That provision – as a whole – states "a

plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels". Two things are apparent from a fair reading of this claim: 1) the plating solution is flowing through the inlets and into one of the channels – not into a sparger and then into a channel, and 2) the plating solution is flowing into one of the channels and toward another channel – not flowing toward the face of the piece to be plated, as is the case with Applicant's Admitted Prior Art.

PROPOSED CLAIM AMENDMENTS FOR CONSIDERATION BY EXAMINER/BOARD

The Applicant could amend claim 1, in part, to state the following:

a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets directly into one and towards another of the upper and lower channels, or

a plating solution horizontal sparger ~~comprising~~ consisting of a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels.

The Applicant does not believe that either amendment presented above is necessary, because as the Applicant contends, the claim provision does in fact speak for itself and does not read on Applicant's Admitted Prior Art; however, the Applicant respectfully presents two options shown above that either the Examiner or the Board could accept and recommend. If the Examiner believes one of these options is acceptable, the Applicant will withdraw the Appeal through the filing of a Request for

Continued Examination that includes one of the above amendments. It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. If, however, the Examiner does not agree with the Applicant's arguments or proposed amendments, then the Applicant is satisfied asking the Board to review the matter and make a reasoned recommendation or determination.

INCORRECT ASSERTION OF OMISSION OF ELEMENTS AND FUNCTIONS AS OBVIOUS

Second, the Applicant would like to address a comment by the Examiner from the November 13, 2006 Office Action, page 3, last paragraph. The Examiner states the following:

> "Moreover, it would have been obvious to one having ordinary skill in the art to have omitted the vertical spargers if uniform direct flow to the plating substrate is not desired. According to MPEP 2144.04, omission of an element and its function is obvious if the function of the element is not desired."

This statement by the Examiner is quite significant and wholly incorrect. The polybasic acid salts in the MPEP example were not desired or required, such as in compositions for providing corrosion resistance in environments which do not encounter fresh water. Therefore, if the fresh water is removed – there is no need for the salts. The sparger function of the Applicant's Admitted Prior Art was not removed – it was just redesigned to operate differently and more efficiently. But, the function of the sparger – to direct fluid into or onto an area or surface was kept in the Applicant's embodiment. The Examiner's attention is drawn to the immediately following paragraph in that same section of the MPEP:

> Note that the omission of an element and retention of its function is an indicia of unobviousness. *In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966) (Claims at issue were directed to a printed sheet having a thin layer of erasable metal bonded directly to the sheet wherein said thin layer obscured the original print until removal by erasure. The prior art disclosed a similar printed sheet which further comprised an intermediate transparent and erasure-proof protecting layer which prevented erasure of the printing when the top layer was erased. The claims were found unobvious over the prior art because the although the transparent layer of the prior art was eliminated, the function of the transparent layer was retained since appellant's metal layer could be erased without erasing the printed indicia.).

In this case, an element has been removed, but the function of a sparger has been retained. The Examiner again is clearly piecing together puzzle pieces to arrive at a desired result, instead of examining the claim and the Applicant's application as a whole. This action on the Examiner's part is improper hindsight examination and should be rejected by the Board.

CONCLUSION

Based on this argument, along with the arguments presented in the Applicant's Appeal Brief, Applicant's Admitted Prior Art does not anticipate claim 1 of the present application because Applicant's Admitted Prior Art is lacking and/or missing at least one specific feature or structural recitation found in the present application, and in claim 1.

Claim 1 is therefore allowable as not being anticipated by Applicant's Admitted Prior Art. Further, Applicant's Admitted Prior Art does not anticipate claims 2, 9 and 12 of the present application by virtue of their dependency on claim 1.

In addition, Applicant's Admitted Prior Art cannot render unpatentable claim 1 of the present application, because one of ordinary skill in the art cannot possibly review the Admitted Prior Art on its face and, remove the vertical spargers, place horizontal spargers in the bottom of the chamber and arrive at claim 1.

ISSUE NO. 2 - §103 (A) REJECTION OF CLAIMS 1-15 BASED ON APPLICANT'S ADMITTED PRIOR ART IN VIEW OF LACE ET AL.

Claims 1-15 are rejected under 35 USC §103(a) as being unpatentable over Admitted Prior Art in view of Lace et al. The Applicants respectfully disagree.

Claim 1 recites:

"A plating system comprising:
an elongated upper channel and an elongated lower channel; and
a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels."

Claim 15 recites:

"A plating system comprising:
an anode, a planar cathode, a horizontal sparger, and a plurality of electrically insulating shields; wherein
each of the plurality of shields is positioned between the anode and the cathode but not between the sparger and the cathode, and each of the plurality of shields is approximately co-planar with one of two reference planes that are substantially parallel to the cathode; and
the sparger is adapted to direct plating fluid toward and edge of the cathode along in a plane substantially co-planar with cathode."

As pointed out in the Specification, an improved plating system 100 is shown in **Figure 2** which provides for improved metal distribution over a work piece 900. In the improved system 100, the vertical spargers (spargers 11 in **Figure 1**) found in prior art plating systems are eliminated and fluid 800 enters the chamber 120 through the bottom of the chamber with the bottom of the chamber acting as a horizontal sparger 110. By eliminating the vertical spargers, the distance D2 between the part being plated 900 and the shields 130 can be decreased (with a corresponding decrease in the distance D4 between the fields forming the sides of the channel).

As the Specification also specifically points out, the system of **Figure 2** may be obtained by modifying the system of **Figure 1** (a Technic Inc. MP 300 – and Applicant's Admitted Prior Art) in the following manner: (1) eliminating the tubular vertical solution spargers and replacing them with holes 111 fabricated in the lower plenum so that solution travels around the parts to be plated as a turbulent flow from the bottom of the parts to the tops, and not from the sides; (2) increasing the solution velocity; (3) moving the shields closer to the parts to be plated (cathodes); (4) incorporating part holding clamps sufficiently narrow so as to adequately hold the part while still permitting the claims and parts to move between the shields; and (5) incorporating a double rinsing and drying process where the plating/part holding fixture is rinsed and dried first, and the plated part and lower half of the fixture are subsequently rinsed and dried. These modifications to the Technic system render the claims of the current application patentable over Technic, because Technic cannot possibly render unpatentable the modifications disclosed in the current system and recited in the claims, because one of ordinary skill in the art would not view the Admitted Prior Art alone or in combination with Lace and arrive at the present disclosure or claims.

The Applicant believes, after reviewing the Examiner's Answer, that the Examiner is merely assembling puzzle pieces to arrive at a whole "prior art reference",

and the Examiner is also improperly deconstructing claim 1 of the present application to arrive at the goal the Examiner wishes to reach.

REVIEWING THE INDEPENDENT CLAIMS AS A WHOLE

First, it is important to read claim 1 *as a whole*. Claim 1 states that a plating system comprises the following: a) ***an elongated upper channel and an elongated lower channel***; and b) a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing ***through the inlets into one*** and ***towards another*** of the upper and lower channels. (emphasis added) The original specification, on page 4, states that the shields 130 form narrow upper and lower plating channels through which the parts being plated move with each part having one edge positioned within the upper plating channel and an opposite edge positioned within the lower plating channel. Two things are apparent from a fair reading of this claim: 1) a distinct/separate elongated upper channel is formed and a distinct/separate elongated lower channel is formed, and 2) the plating solution is flowing into one of the channels and toward another channel – not flowing toward the face of the piece to be plated, as is the case with Applicant's Admitted Prior Art.

PROPOSED CLAIMS AMENDMENTS FOR CONSIDERATION BY EXAMINER/BOARD

The Applicant could amend claim 1, in part, to state the following:

> an elongated upper channel and an elongated lower channel through which a part to be plated moves with the part having an edge positioned within the upper channel and an opposite edge positioned within the lower channel, or

an elongated upper channel formed by a plurality of upper shields and an elongated lower channel formed by a plurality of lower shields, wherein each channel is separated by a gap between the upper and lower shields.

The Applicant does not believe that either amendment presented above is necessary, because as the Applicant contends, the claim provision does in fact speak for itself and does not read on Applicant's Admitted Prior Art alone or in combination with Lace; however, the Applicant respectfully presents two options shown above that either the Examiner or the Board could accept and recommend. If the Examiner believes one of these options is acceptable, the Applicant will withdraw the Appeal through the filing of a Request for Continued Examination that includes one of the above amendments, along with any proposed amendments presented in the previous section. It should be clear, however, that the Applicant is respectfully seeking to work with the Examiner in this case to move this matter forward to allowance, instead of wasting resources through the Appeal process. If, however, the Examiner does not agree with the Applicant's arguments or proposed amendments, then the Applicant is satisfied asking the Board to review the matter and make a reasoned recommendation or determination.

THE LACE REFERENCE & MOTIVATION TO COMBINE

Lace et al. (US Patent 4772371) discloses an electroplating apparatus for high-speed electroplating a cathodic strip of metal passed therethrough. The Lace reference discloses electrolyte fluid holes under the shield (Reference Number 46 in Figure 2 of Lace), but the fluid is not directed into one of an elongated upper channel or an elongated lower channel and towards the other, as claim 1 recites. Given that the

shields are positioned *completely perpendicular* to the cathode and anode, and that the cathode physically travels through the middle of the shield, it isn't clear why one of ordinary skill in the art would review Lace and just pull out the idea of an electrolyte fluid hole at the bottom of the compartment. There must be some motivation in Applicant's Admitted Prior Art that would lead to a combination with Lace, and given that the arrangement is Lace is completely different from anything shown in Applicant's Admitted Prior Art – the Applicant is not seeing the motivation to combine.

One interesting note in the motivation to combine debate is that if Lace included vertical spargers in a position to direct flow onto the cathodic strip (Reference Number 66 in Figure 1 of Lace), those spargers would be in position in each chamber formed by the electrically insulating shields (Reference Number 46 in Figure 2 of Lace), positioned to hit the cathode with electrolyte fluid as it exits the shield, and wouldn't require that the chambers be enlarged at all, based on the Figures shown (see specifically the space formed between the anodes 68 and 70 and the electrolyte fluid hole (not so numbered in Figure 2) on the bottom of the chamber). In the current application, one of the features of the horizontal spargers is to narrow the upper and lower channels by bringing the shields closer to the cathode, which is claimed in the dependent claims of the present application. That feature would not be necessary nor chosen in Lace, because the shield is perpendicular to the cathode, which moves right through the middle of the shield. The problem solved by Lace is really completely different that the problem solved by the current application and Claims 1 and 15, and therefore, one of ordinary skill in the art wouldn't read Lace with the motivation to combine it with Applicant's Admitted Prior Art to solve the problem that Claim 1 solves in the current application.

DEVELOPMENT OF TECHNIC MP 300 PLATING SYSTEM

In addition, the Examiner cites the Applicant's Admitted Prior Art as the primary reference – the Technic MP 300 system, and then states that this system does not explicitly disclose the flow is in a plane substantially coplanar with the cathode. The Examiner then relies on the disclosure of Lace et al. to fill that gap in the Applicant's Admitted Prior Art. It is interesting to note that the Lace reference was issued in 1988. The Technic MP 300 development followed the issuance of the Lace reference, along with the issuance of several patents directed to vertical spargers, including US 5985123. Those of ordinary skill in the art of continuous plating obviously didn't consider Lace during the development of the Technic MP 300 or, according to the Examiner's logic, they would have obviously used the horizontal sparger system developed by the Applicants. This analysis applies directly to the continuing conversation directed to a motivation to combine the references, which the Applicants continue to assert just isn't apparent.

IMPROPER HINDSIGHT RECONSTRUCTION

So, the question becomes whether the Examiner is improperly combining the references, without apparent motivation, through hindsight reconstruction. The Federal Circuit stated in *In re* Fritch, 972 F.2d 1260, 23 USPQ2d 1784 (Fed. Cir. 1992)(quoting *In re* Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988)):

> "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention".

The Court then said in *In re* Dembiczak (175 F.3d 994, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citing W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)), cert denied, 469 US 851 (1984)): "measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and then accepted wisdom in the field." Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against the teacher." (*In re* Dembiczak) A general relationship between fields of the prior art references to be combined is insufficient to establish the suggestion or motivation. (See, e.g. C. R. Bard, Inc. v. M3 Sys., Inc., 157 F3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). The Court in Mc Ginley v. Franklin Sports Inc., 262 F.3d 1339, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) (citing Gambro Lundia AB v. Baxter Healthcare Corp., 110 F3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) stated:

> "The genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some "teaching, suggestion or reason" to combine cited references...When the art in question is relatively simple, as is the case here, the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine the references need to be applied rigorously."

The invention that was made, however, does not make itself obvious; that suggestion or teaching must come from the prior art. (See, e.g. Uniroyal, Inc. v. Rudkin-

Wiley Corp., 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988)). This standard would also be acceptable under the KSR v. Teleflex obviousness standard.

Given that the Technic MP 500 was developed "Post Lace", the problems to be solved in Lace and Applicant's Admitted Prior Art were different, and other art in the field were developing these plating systems in the same manner as Technic, it stands to reason that the accepted wisdom in the field was not considering Lace as a viable option to utilize in the system developed by Technic (Applicant's Admitted Prior Art). In addition, it would stand to reason that Lace was not a viable option to utilize in combination with the Applicant's Admitted Prior Art (Technic MP 500) in the system developed by the current Applicants.

CLAIM 15 ANALYSIS

Turning to Claim 15, it recites in part: "A plating system, comprising: an anode, a planar cathode, a horizontal sparger, and a plurality of electrically insulating shields; wherein each of the plurality of shields is positioned between the anode and the cathode but not between the sparger and the cathode, and each of the plurality of shields is approximately co-planar with one of two reference planes that are substantially parallel to the cathode...". Claim 15 is specific and very clear about the position of the shields. This claim virtually eliminates Lace as a prior art reference, because Lace places the shield (Reference Number 46 in Figure 2 of Lace), between the electrolyte fluid holes (Not Referenced in Figure 2, but shown in front of and under the shield) and the cathode (Reference Number 66 in Figure 1 of Lace). The shields in Lace are necessarily positioned to break apart the channel and to form even compartments (see Column 4, lines 9-31 of Lace). Lace does not contemplate arranging the shields with respect to the anode, cathode and sparger, as does Claim 15 and the current application. Therefore, it seems that the placement of the electrolyte

fluid holes in Lace, in combination with the requirement that the shields are aligned perpendicular to the anode and cathode and form compartments, would lead one of ordinary skill in the art not to consider Lace when reviewing Applicant's Admitted Prior Art for potential improvements and modifications. Pulling the electrolyte fluid holes out of Lace and putting them in a vacuum in combination with Applicant's Admitted Prior Art is improper hindsight reconstruction. The Applicant respectfully asks the Examiner and the Board to put the Lace reference into context, as to what one of ordinary skill in the art is looking for when developing new technologies.

CONCLUSION

One of ordinary skill in the art would not read Applicant's Admitted Prior Art and Lace, alone or in combination, and find the motivation, suggestion or teaching to produce the plating system of claims 1 and claims 15 of the Applicant's present application. In addition, claims 2-14 are also allowable by virtue of their dependency on independent claim 1.

APPLICANT'S RESPONSE TO EXAMINER'S ANSWER (10) RESPONSE TO ARGUMENTS

The Applicant herein responds to the specific points raised on Page 10, Section 10 entitled "Response to Argument" in the Examiner's Answer.

The "series of inlets" issue that was raised in the last 2 paragraphs on page 10 and the first paragraph of page 11 has been addressed in the prior sections.

The "comprising" language issue has been dealt with in both of the sections above, especially with respect to the vertical versus horizontal spargers.

The Applicant would like to address in detail the contention that the advantages presented by the Applicant in the prior response are limitations that should be in the claims, but not otherwise considered. The Applicant respectfully disagrees. The Applicant pointed out the advantages of the present plating technology and how it solves the problem presented by Applicant's Admitted Prior Art. These advantages are meant to give the reader and the Examiner the reason for the technical solution to the problem presented in the prior art. They are not meant to be "limitations" that need to be a part of the claims.

As a matter of fact, the MPEP §707.07(f) states that the Examiner must consider the asserted advantages and state the reasons for his or her position on the record. It is not clear that the Examiner actually considered these advantages, but merely dismissed them as not claimed and therefore, not considered.

> "After an Office action, the reply (in addition to making amendments, etc.) may frequently include arguments and affidavits to the effect that the prior art cited by the examiner does not teach how to obtain or does not inherently yield one or more advantages (new or improved results, functions or effects), which advantages are urged to warrant issue of a patent on the allegedly novel subject matter claimed.
>
> If it is the examiner's considered opinion that the asserted advantages are not sufficient to overcome the rejection(s) of record, he or she should state the reasons for his or her position in the record, preferably in the action following the assertion or argument relative to such advantages. By so doing the applicant will know that the asserted advantages have actually been considered by the examiner and, if appeal is taken, the Board of Patent Appeals and Interferences will also be advised. See MPEP § 716 *et seq.* for the treatment of affidavits and declarations under 37 CFR 1.132.
>
> The importance of answering applicant's arguments is illustrated by *In re Herrmann*, 261 F.2d 598, 120 USPQ 182 (CCPA 1958) where the applicant urged that the subject matter claimed produced new and useful results. The court noted that since applicant's statement of advantages

> was not questioned by the examiner or the Board of Appeals, it was constrained to accept the statement at face value and therefore found certain claims to be allowable. See also *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed. Cir. 1995) (Office failed to rebut applicant's argument)."

The Applicant contends that the Examiner did not properly review and address the asserted advantages, but instead considered them limitations to be included in the claims, which they clearly are not, in some cases. The Examiner should also note that many of the proposed amendments presented herein take into account some of these advantages, and therefore, it may be wise for the Examiner or Board to allow this case to proceed to prosecution, so that these claims may be entered and discussed, and so that this case may finally proceed to allowance. The Applicant respectfully asks the Examiner to either state that these advantages, in whole or in part, should be a part of the claims or should say that he has taken them into account and does not consider them as having merit in this review. Its not clear from the Examiner's comments whether they were not considered because they were not part of the claims or whether they were considered and should be a part of the claims.

The Applicant has addressed Examiner's assertions on page 11, last paragraph regarding the Lace reference and its applicability in this case.

NEW GROUND OF REJECTION

The Applicant isn't sure what the Examiner means by the first full paragraph on page 12, other than to suggest a new ground of rejection, and therefore, the Applicant is filing a Petition under 37 CFR 1.181(a) to have this matter considered in order to protect the Applicant's rights. The Applicant does not remember seeing this assertion by the Examiner in previous Office Actions and questions whether it can be presented

at this time without invoking the Applicant's rights to request that prosecution be reopened.

To address this issue, the Examiner stated that he is not relying on the vertical spargers to meet the horizontal sparger of the instant claims, the plurality of shields 13 of Admitted Prior Art is not between the sparger and the cathode as stated in claim 15. As mentioned earlier, Claim 15, it recites in part: "A plating system, comprising: an anode, a planar cathode, a horizontal sparger, and a plurality of electrically insulating shields; wherein each of the plurality of shields is positioned between the anode and the cathode but not between the sparger and the cathode, and each of the plurality of shields is approximately co-planar with one of two reference planes that are substantially parallel to the cathode...". (emphasis added). The Applicant is not clear as to what the Examiner is saying. Is he giving a sidebar on what the Admitted Prior Art includes or doesn't include, or is he saying that Claim 15 is somehow trying to refer to the Admitted Prior Art? The statement "the plurality of shields 13 of Admitted Prior Art is not between the sparger and the cathode as stated in claim 15" leaves the impression that the Examiner believes the Claim 15 is trying to co-opt the Admitted Prior Art. Claim 15 is what it is – it recites, in part, a plating system having a plurality of shields, wherein each of the plurality of shields is positioned in one way, but not another, in an effort to be clear.

Given that the Applicant is willing to work with the Examiner to arrive at a set of allowable claims, and has even provided proposed claims amendments for consideration, the Director should consider this final point to be a new ground of rejection and allow the Applicant to petition to open prosecution. The Applicant believes that a decision of this kind would be the ideal use of the resources of the Office.

Respectfully submitted,
Buchalter Nemer, A Prof. Corporation

Dated: November 6, 2007 By:

Sandra P. Thompson, PhD, Esq.
Reg. No. 46,264
E-mail: sthompson@buchalter.com
Direct Line: 949-224-6282

ATTORNEYS FOR APPLICANT(S):

Buchalter Nemer, A Professional Corporation
18400 Von Karman Ave., Suite 800
Irvine, CA 92612
Fax: 949-224-6203

APPENDIX OF PENDING CLAIMS

1. (Previously Presented) A plating system comprising:
an elongated upper channel and an elongated lower channel; and
a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets into one and towards another of the upper and lower channels.

2. (Original) The system of claim 1 further comprising:
an anode; and
a substantially planar cathode comprising a first surface conductive surface, a second conductive surface, and a perimeter edge, the first conductive surface and second conductive surfaces being substantially parallel to each other and positioned on opposite sides of the cathode; wherein
the sparger is positioned at least as close to the perimeter edge of the cathode as to either of the first or second conducting surfaces.

3. (Original) The system of claim 2 wherein the sparger directs any plating solution flowing through the inlets towards the cathode in a plane substantially coplanar with the cathode.

4. (Original) The system of claim 3 wherein:
each of the upper and lower channels comprises two substantially planar and parallel non electrically conductive sides that are substantially parallel to the cathode; and
the cathode is positioned at least partially within each of the upper and lower channels between the non electrically conductive sides.

5. (Original) The system of claim 4 wherein:

the upper and lower channels are positioned opposite each other and are separated from each other, the separation between the channels forming a pair of solution egress slots; and

the channels are adapted to prevent current from flow between the anode and cathode other than through the egress slots.

6. (Original) The system of claim 5 wherein the egress slots are positioned approximately parallel to a center line of the cathode.

7. (Original) The system of claim 6 wherein the cathode comprises a dielectric substrate and the conductive surfaces are adapted to promote the formation of heat spreaders on the dielectric substrate.

8. (Original) The system of claim 1 wherein each of the upper channel and lower channel have a width less than or equal to one inch.

9. (Previously Presented) The system of claim 1 wherein the horizontal sparger directs any plating solution flowing through the inlets into the lower channel and towards the upper channel.

10. (Original) The system of claim 1 wherein each of the upper channel and lower channel have a width less than or equal to 0.5 inches.

11. (Original) The system of claim 1 wherein each of the upper channel and lower channel have a width less than or equal to 0.5 inches, and the further comprising a plurality of part holding clamps electrically coupled to a power source and positioned within the upper channel or the lower channel.

12. (Original) The system of claim 1 further comprising a plurality of anodes positioned outside and along the length of the upper and lower channels.

13. (Original) The system of claim 1 wherein the upper channel and lower channel are separated by a distance and at least one of the upper channel and lower channel are adapted to be moved to vary the distance.

14. (Original) The system of claim 1 wherein the shortest distance from a part being plated to a channel wall is less than the shortest distance between the channel wall and an anode.

15. (Previously Presented) A plating system comprising:
an anode, a planar cathode, a horizontal sparger, and a plurality of electrically insulating shields; wherein
each of the plurality of shields is positioned between the anode and the cathode but not between the sparger and the cathode, and each of the plurality of shields is approximately co-planar with one of two reference planes that are substantially parallel to the cathode; and
the sparger is adapted to direct plating fluid toward and edge of the cathode along in a plane substantially co-planar with cathode.

Claims 16-18: Canceled.

EVIDENCE APPENDIX

There is no additional evidence at this time of which the Applicant's are aware.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings at this time of which the Applicant's are aware.